



US Army Corps
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Engineer Research and
Development Center

Digital Topographic Support System – Deployable

Description and Background

The **Digital Topographic Support System-Deployable (DTSS-D)** was originally acquired at the direction of the Army Chief of Staff to address an immediate need to provide image maps and terrain data to support Army missions. Then, as is still the case, standard map products did not exist or were out of date for a large portion of the Earth's surface. The DTSS-D provided the Commander with a capability to quickly produce map products from multispectral imagery when standard products were unavailable or unsuitable for reasons of content or currency. The original procurement was executed by the **Project Director, Combat Terrain Information Systems (PD CTIS)** in FY94-FY95. Over the years the software capabilities have been improved to encompass the full range of DTSS capabilities, including terrain analysis, terrain visualization, and terrain data management.

System



The DTSS-D is configured either for use in a garrison environment, or for field use in a tent or similar enclosure, and does not include a tactical shelter or vehicle. The DTSS-D has undergone a cyclic upgrade, improving workstation processing power, product throughput, and system usability, as well as adding new terrain analysis capabilities. This upgrade was completed in FY01.

The upgraded DTSS-D includes updated versions of the software packages, an improved user interface, ERDAS Virtual GIS for dynamic terrain visualization, and additional terrain analysis capabilities all hosted on a Windows-based platform. The upgraded DTSS-D consists of an Army Common Hardware Software 2 (CHS 2) Versatile Computer Unit (VCU) with dual 933 Mhz processors, 2 GB RAM, 3D stereo graphics video card, DVD RAM Drive, JAZ Drive, 8mm Tape Drive, LS 120 Floppy Drive, PCMCIA Card Reader, 3D Stereo Graphics Monitor, IBM Thinkpad T21 Laptop computer with 512 MB RAM, CHS2 1000W UPS, 500GB RAID, CDRW, CISCO Switch, 36" Large Format Scanner and two 36" Large Format HP 1055 Plotters. The DTSS-D is also the only DTSS configuration with 3D stereo monitors that can extract vector and elevation data from stereo imagery. All of this equipment has been integrated into ruggedized transit cases for ease of system transport and setup. The upgraded DTSS-D comes equipped with the necessary communications capabilities to operate stand-alone, or in conjunction with a DTSS-Heavy or DTSS-Light.

Key Capabilities

The DTSS-D is a tactical combat support system capable of receiving, formatting, creating, manipulating, merging, updating, storing, retrieving, and managing digital topographic data, then processing these data into hardcopy and softcopy topographic products. The DTSS-D accepts topographic and multispectral imagery data from the **National Imagery and Mapping Agency (NIMA)** and from other sources where available.

DTSS-D functional capabilities include creation of a variety of **tactical decision aids (TDAs)** including: (1) Visibility/Line of Sight, (2) Mobility, and (3) Data Query/Special Product analyses. TDAs generated on the DTSS-D can be output as map products that include all applicable marginalia. These overlays can be exported in various formats for use on systems that use viewers such as **Command and Control Personal Computer (C2PC)**, **Army Battle Command Systems (ABCS)**, and **Commercial Joint Mapping Toolkit (C/JMTK)**.

In addition to custom TDA generation, the DTSS-D provides access to the full capabilities of the image processing and GIS software packages. ERDAS Imagine image processing software is being used to process and create commercial, NIMA standard, and national digital imagery in order to perform imagery rectification, image map generation, thematic layer generation, limited digital database creation, and 3-D terrain perspective viewing.

The DTSS-D provides updated map background and terrain intelligence information to systems on the battlefield. The DTSS-D also accepts terrain intelligence and data from other ABCS systems.

Current Status

Eighty-three (83) Windows-based DTSS-Ds were purchased in FY00 and FY01. All eighty-three DTSS-Ds were fielded to topographic units worldwide in FY01. These systems will allow for multiple workstations at some terrain teams, and further outfit Reserve Component units.

PD CTIS is building eight (8) additional DTSS-Ds in FY04. Seven (7) will be fielded to **Special Forces** and one (1) will be fielded to the **Stryker Brigade Combat Team (SBCT-3)**.

Milestones

Operational Needs Statement	May 1994
Testing	Sep 1995-Apr 1997
Milestone III Decision	Jul 1994
Delivery to Units	Mar-Jun 1995
Equipment Upgrade	Dec 1996-Jun 1997
Software Enhancements	Apr-Jun 1996
	Apr-May 1997
	Jan-Apr 1998
Cyclic Upgrade Development	Jan-Apr 2000
Cyclic Upgrade Testing	Nov 2000-Jan 2001
Cyclic Upgrade Fielding	Feb-Sep 2001
Fielding to Special Forces and SBCT-3	Nov 2003

Point of Contact

Dennis Scholl, dscholl@tec.army.mil, COMM: (703) 428-7132, DSN: 328-7132

